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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8271-2-3 (1981): Quartz Crystal Units Used in Oscillators, Part 2: Series AA, Section 3: Quartz Crystal Unit Type AA-03 [LITD 5: Semiconductor and Other Electronic Components and Devices]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR
QUARTZ CRYSTAL UNITS USED IN OSCILLATORS

PART II SERIES AA

Section 3 Quartz Crystal Unit Type AA-03

0. General — This standard shall be read in conjunction with IS : 8271 (Part I)-1981 'Specification for quartz crystal units used for frequency control and selection: Part I General requirements and tests (first revision) '.

1. Outline and Dimensions — Holder outline shall conform to type AA (see sheet 1A of IS : 4570-1968 'Specification for crystal holders').

2. Marking — See 8 of IS : 8271 (Part I)-1981.

3. Construction and Workmanship — See 7 of IS : 8271 (Part I)-1981.

4. Test Schedule and Detail Requirements

4.1 General Conditions for Test — See 9.2 of IS : 8271 (Part I)-1981.

4.2 Test Schedule — The sequence and grouping of type, routine and acceptance tests shall be as per 9.1 of IS : 8271 (Part I)-1981.

4.3 Detail Requirements — The detail requirements applicable to this particular type of crystal unit shall be as specified in Table 1.

TABLE 1 DETAIL REQUIREMENTS OF QUARTZ CRYSTAL UNIT TYPE AA-03

Characteristics	Requirements	
a) Type of holder	AA (See 1)	
b) Frequency range	1 to 20 MHz	
c) Frequency tolerance		
i) Over operating temperature range	±30 ppm	
d) Resonance resistance	See Table 2	
e) Mode of oscillation	Fundamental	
f) Load capacitance	Infinity (Series)	
g) Capacitance shunt	7 pF, Maximum	
h) Operating temperature range	-20°C to +70°C	
j) Test set, calibration values and rated drive level	See Table 3	
k) Shock [as per 9.15 of IS : 8271 (Part I)-1981]	1 to 2 MHz	Over 2.0 to 20 MHz
i) Frequency change permitted	±10 ppm	±5 ppm
ii) Resonance resistance change permitted	±15 percent	±10 percent
m) Vibration [as per 9.16.1 (severity A) of IS : 8271 (Part I)-1981]		
i) Frequency change permitted	±10 ppm	±5 ppm
ii) Resonance resistance change permitted	±15 percent	±10 percent
n) Temperature cycling		
i) Frequency change permitted	±10 ppm	±5 ppm
ii) Resonance resistance change permitted	±15 percent	±10 percent
p) Temperature run		
i) Frequency change permitted	±10 ppm	±5 ppm
ii) Resonance resistance change permitted	±15 percent	±10 percent
q) Ageing		
Frequency change permitted	5 ppm	

TABLE 2 RESONANCE RESISTANCE

[Table 1(d)]

Frequency Range	Maximum Resonance Resistance	Frequency Range	Maximum Resonance Resistance
MHz	Ohms	MHz	Ohms
(1)	(2)	(1)	(2)
From 0.9 to 1	440	Over 2.25 to 2.6	130
Over 1.0 to 1.12	400	Over 2.6 to 3.0	90
Over 1.12 to 1.25	380	Over 3 to 3.4	70
Over 1.25 to 1.37	340	Over 3.4 to 3.75	52
Over 1.37 to 1.5	300	Over 3.75 to 4.0	45
Over 1.5 to 1.62	280	Over 4 to 5	37
Over 1.62 to 1.75	250	Over 5 to 7	25
Over 1.75 to 1.87	220	Over 7 to 10	20
Over 1.87 to 2.0	190	Over 10 to 15	18
Over 2.0 to 2.12	170	Over 15 to 20	15
Over 2.12 to 2.25	150		

TABLE 3 TEST SET, CALIBRATION VALUES AND RATED DRIVE LEVEL

[Table 1(j)]

Sl No.	Frequency Range	Calibration, Values			Rated Drive Level
		Resistance	Crystal Current	Resistor Voltage Drop	
	MHz	ohms	mA	V	mW
(1)	(2)	(3)	(4)	(5)	(6)
1.	From 0.8 to 1.5	100	10	—	10.0 ± 2.0
2.	Over 1.5 to 2.25	50	15	—	
3.	Over 2.25 to 3.4	40	15	—	
4.	Over 3.4 to 5.1	25	20	—	
5.	Over 5.1 to 7.5	14	25	—	
6.	Over 7.5 to 10	11	30	—	
7.	Over 10.0 to 15	13	20	—	5.0 ± 1.0
8.	Over 15.0 to 20	10	—	0.22	5.0 ± 1.0

For Sl No. 1 to 7 — Test Set TS-330/TSM

For Sl No. 8 — Test Set TS-683/TSM